

Notice of Allowability

Application No.

09/486,890

Examiner

Andrew T. Piziali

Applicant(s)

OMOTE ET AL.

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/30/2005.
2. ☒ The allowed claim(s) is/are 46, 48 and 50.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

Allowable Subject Matter

1. Claims 46, 48 and 50 are allowed.
2. The following is an examiner's statement of reasons for allowance:

The closest prior art in USPN 5,225,273 to Mikoshiba et al. (hereinafter referred to as Mikoshiba). Mikoshiba discloses that it is known in the art of touch panels (column 1, lines 14-23) to form an ITO transparent conductive film by sputtering followed by heat aging performed at a temperature of between about 100 to about 250°C (column 9, line 32 through column 10, lines 64). Mikoshiba specifically teaches a heat aging temperature of 150°C in Examples 1-6 (see column 12, lines 43-44 and column 13, lines 55-56). Examples 1-4 of applicant's specification clearly disclose that a sputter deposited transparent conductive ITO film heat aged at a temperature of about 150°C produces a film possessing a mean crystal size within the range of 40 to 100 nm, an arithmetic mean roughness (Ra) of $0.4 \text{ nm} \leq \text{Ra} \leq 2.3 \text{ nm}$, and a root-mean-square roughness (Rms) of 0.8 to 0.9 nm. In comparison, Comparative Examples 1-2 of applicant's specification clearly disclose that a transparent conductive ITO film that is sputter deposited in the same way as in Examples 1-4, except that the heat aging process is omitted, possesses a mean crystal size within the range of 10 to 20 nm, an arithmetic mean roughness (Ra) of $0.1 \text{ nm} \leq \text{Ra} \leq 0.25 \text{ nm}$, and a root-mean-square roughness (Rms) of 0.55 nm. Clearly, the heat aging step is directly related to the arithmetic mean roughness and the root-mean-square roughness.

Considering that the ITO transparent conductive film taught by Mikoshiba is formed by a substantially identical method (sputtering followed by heat aging at about 150°C) compared to the method disclosed by the current applicant in Examples 1-4, it appears that the transparent conductive film of Mikoshiba possesses the claimed arithmetic mean roughness and root-mean-square roughness. Mikoshiba also discloses that the transparent conductive electrode may comprise crystal grain aggregates (see the paragraph bridging columns 3 and 4). Considering that the applicant discloses that the presence of crystal grain aggregates is responsible for the currently claimed arithmetic mean roughness and root-mean-square roughness (see page 19, line 23 through page 20, line 7 of applicant's specification), it appears that the transparent conductive film of Mikoshiba possesses the claimed arithmetic mean roughness and root-mean-square roughness.

Although Mikoshiba appears to teach to the claimed roughness values, Mikoshiba does not teach or suggest forming the film by a coating or printing process using a sol-gel material. Mikoshiba fails to teach or suggest how to form the claimed film, with the claimed roughness values, with a sol-gel material.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

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ANDREW T. PIZIALI
PATENT EXAMINER


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